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Session C Airport Engineering
New Pavement Bad? – Now What

Jeffrey Rapol, AAS-100, Airport Engineering Division
Washington DC, 20591 202-267-7474
jeffrey.rapol@faa.gov

Objectives of Presentation

- ✈ Provide Federal Aviation Administration (FAA) References
 - ✈ FAA Advisory Circulars (ACs)
 - ✈ Engineering Briefs
- ✈ Overview of FAA Headquarters and FAA Region Roles
- ✈ Questions / Dialog / Interaction
 - ✈ Is FAA Guidance Clear?, Available?
 - ✈ What Can We Do To Help You?



FAA Guidance

✈️ FAA AC 150/5370-10A Standards for Specifying Construction of Airports

- ✈️ General Provisions (Sponsor, Engineer, Contractor)
- ✈️ Individual Specification Item Guidance (e.g. Items P-401 and P-501)
- ✈️ Engineering Briefs.

EB56	DEVELOPMENT OF REVISED ACCEPTANCE CRITERIA FOR ITEM P-401 AND ITEM P-50.	January 27, 1999
EB57	EXTENDED Q-VALUE TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL). EXCEL SPREADSHEET FOR USE WITH BRIEF.	May 19, 1999
EB34A	REFEREE TESTING OF HARDENED PORTLAND CEMENT CONCRETE PAVEMENT--PERCENT WITHIN LIMITS REVISION	May 13, 2002



General Provisions

PART I - GENERAL PROVISIONS

Section 10. Definition of Terms

Section 20. Proposal Requirements and Conditions

Section 30. Award and Execution of Contract

Section 40. Scope of Work

Section 50. Control of Work

Section 60. Control of Materials

Section 70. Legal Relations and Responsibility to Public

Section 80. Prosecution and Progress

Section 90. Measurement and Payment

Section 100. Contractor Quality Control Program

Section 110. Method of Estimating Percentage of Material within
Specification Limits (PWL)



General Provisions Section 50

50-02 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans or specifications.



General Provisions Section 50

50-09 INSPECTION OF THE WORK.

Any work done or materials used without supervision or inspection by an authorized representative of the owner may be ordered removed and replaced at the Contractor's expense unless the owner's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.



General Provisions Section 50

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For AIP contracts, the sponsor should keep the FAA advised of the Engineer's determinations as to acceptance of work that is not in reasonably close conformity to the contract, plans, and specifications. Change orders or supplemental agreements must bear the written approval of the FAA.

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General Provisions Section 50

50-10 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. All work which does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer as provided in the subsection titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.



General Provisions Section 60

60-07. UNACCEPTABLE MATERIALS. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.



General Provisions Section 100

SECTION 100

CONTRACTOR QUALITY CONTROL PROGRAM

GENERAL. When the specifications require a Contractor Quality Control Program, the Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.



General Provisions Section 100

Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.



General Provisions Section 100

The intent of this section is to enable the Contractor to establish a necessary level of control that will:

- a. Adequately provide for the production of acceptable quality materials.
- b. Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.
- c. Allow the Contractor as much latitude as possible to develop his or her own standard of control.



General Provisions Section 100

The Quality Control Program shall be organized to address, as a minimum, the following items:

- a. Quality control organization;
- b. Project progress schedule;
- c. Submittals schedule;
- d. Inspection requirements;
- e. Quality control testing plan;
- f. Documentation of quality control activities; and
- g. Requirements for corrective action when quality control and/or acceptance criteria are not met.



General Provisions Section 100

a. Daily Inspection Reports.

The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.



Item P-401

✈ 401-5.2 ACCEPTANCE CRITERIA.

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of bituminous mixture which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or improper mix temperature. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and, if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.



Item P-401

✈ 401-5.2 Acceptance Criteria.

- ✈ (1) Mat Density and Air Voids.
- ✈ (2) Stability and Flow.
- ✈ (3) Joint Density.
- ✈ (4) Thickness.
- ✈ (5) Smoothness.
- ✈ (6) Grade.
- ✈ Lot Size. The Engineer shall specify the lot size.
- ✈ Outliers. Outliers shall be discarded, and the PWL shall be determined using the remaining test values.



Item P-401

✈ 401-5.3 RESAMPLING PAVEMENT.

- ✈ a. General. Resampling of a lot of pavement for mat density. Only one resampling per lot will be permitted.
- ✈ (1) A redefined PWL shall be calculated for the resampled lot. The number of tests used to calculate the redefined PWL shall include the initial tests made for that lot plus the retests.
- ✈ (2) The cost for resampling and retesting shall be borne by the Contractor.
- ✈ b. Payment for Resampled Lots. The redefined PWL for a resampled lot shall be used to calculate the payment for that lot.
- ✈ c. Outliers. In accordance with ASTM E 178, at a significance level of 5 percent, discarding outliers when computing the PWL.



Item P-501

✈ 501-5.2 ACCEPTANCE CRITERIA.

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.



Item P-501

✈ 501-5.2 Acceptance Criteria.

- ✈ (1) Flexural Strength.
- ✈ (2) Thickness.
- ✈ (3) Smoothness. Where the departure from correct cross section exceeds 1/2 inch (13 mm), the pavement shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.
- ✈ (4) Grade. Lateral Deviation and Vertical Deviation.
- ✈ (5) Edge Slump. When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump shall be removed and replaced at the expense of the Contractor.
- ✈ (6) Dowel Bar Alignment.
- ✈ f. Removal and Replacement of Concrete. Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints.



Item P-401 and Item P-501

- ✈ Item P-401. Testing organizations performing acceptance these tests shall meet the requirements of ASTM D 3666.
- ✈ Item P-501. Testing organizations performing acceptance these tests shall meet the requirements of ASTM C 1077.



Related Engineering Briefs

✈ In All Cases, the Use of Engineering Briefs Must Be Coordinated With the FAA.



FAA AIP Handbook References

✈️ FAA Order 5100.38B Guidance

1/8/04

Appendix 9. Construction Progress and Inspection Report (FAA Form 5370-1)

Order 5100.38B
Change 1



U.S. Department
of Transportation
Federal Aviation
Administration

CONSTRUCTION PROGRESS AND INSPECTION REPORT

AIRPORT GRANT PROGRAM

Period Ending

Project Number

5. Summary of Laboratory and Field Testing This Period *(Note failing tests and any retests. Summarize out-of-tolerance.)*

Material. *(Identify material subject to pay reduction.)*

7. Problem Areas/Other Comments *(Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)*



FAA AIP Handbook References

Appendix 10. Final Inspection Report (FAA Form 5110-17)

3 SUMMARY OF TEST RESULTS Describe any unusual construction or installation conditions. If unsatisfactory ineligible work which can adversely affect eligible work exists, explain in detail. If previous inspection reports indicate unsatisfactory work, give date of inspection and comment on conditions found at the time of this inspection.



When Paving Exceeds \$250,000

1/8/04

Appendix 7. Grant Special Conditions

Order 5100.38B
Change 1

GENERAL GRANT SPECIAL CONDITIONS:

- T. PROJECTS WHICH CONTAIN PAVING WORK IN EXCESS OF \$250,000:** The Sponsor agrees to perform the following:
- a.** Furnish a construction management program to FAA prior to the start of construction which shall detail the measures and procedures to be used to comply with the quality control provisions of the construction contract, including, but not limited to, all quality control provisions and tests required by the Federal specifications. The program shall include as a minimum:
 - (1) The name of the person representing the Sponsor who has overall responsibility for contract administration for the project and the authority to take necessary actions to comply with the contract.
 - (2) Names of testing laboratories and consulting engineer firms with quality control responsibilities on the project, together with a description of the services to be provided.
 - (3) Procedures for determining that testing laboratories meet the requirements of the American Society of Testing and Materials standards on laboratory evaluation, referenced in the contract specifications (D 3666, C 1077).
 - (4) Qualifications of engineering supervision and construction inspection personnel.
 - (5) A listing of all tests required by the contract specifications, including the type and frequency of tests to be taken, the method of sampling, the applicable test standard, and the acceptance criteria or tolerances permitted for each type of test.
 - (6) Procedures for ensuring that the tests are taken in accordance with the program, that they are documented daily, and that the proper corrective actions, where necessary, are undertaken.

When Paving Exceeds \$250,000

1/8/04

Appendix 7. Grant Special Conditions

Order 5100.38B
Change 1

GENERAL GRANT SPECIAL CONDITIONS:

- T. PROJECTS WHICH CONTAIN PAVING WORK IN EXCESS OF \$250,000:** The Sponsor agrees to perform the following:
- b.** Submit at completion of the project, a final test and quality control report documenting the results of all tests performed, highlighting those tests that failed or that did not meet the applicable test standard. The report shall include the pay reductions applied and the reasons for accepting any out-of-tolerance material. An interim test and quality control report shall be submitted, if requested by the FAA.
 - c.** Failure to provide a complete report as described in paragraph b, or failure to perform such tests, shall, absent any compelling justification, result in a reduction in Federal participation for costs incurred in connection with construction of the applicable pavement. Such reduction shall be at the discretion of the FAA and will be based on the type or types of required tests not performed or not documented and will be commensurate with the proportion of applicable pavement with respect to the total pavement constructed under the grant agreement.
 - d.** The FAA, at its discretion, reserves the right to conduct independent tests and to reduce grant payments accordingly if such independent tests determine that sponsor test results are inaccurate.



FAA Role

✈ Headquarters Offices

- ✈ Issue Guidance
- ✈ Provide Technical Support to Regions
- ✈ Develop Consistency When Addressing Individual Project Issues.

✈ Region Offices

- ✈ Administer Guidance
- ✈ Gather Information
 - Sponsors, Engineers, Contractors Have Varied Interpretations of What Happened.
- ✈ Make Recommendation to Headquarters and Issue Decision.



Questions

- ✈ Is FAA Guidance Clear?, Available?
- ✈ What Can We Do To Help You?
- ✈ How Often is This An Issue?

